

addition, the pivot bushing 130 prevents "moaning," that is, the sound the cable 125 often makes when pulled over a high friction surface.

FIGS. 3b and 4b, show the cover 112 in the vertical position. In this case, there is no significant bend in the cable 125, and the pivot bushing slot 150 is substantially vertical.

FIGS. 3c and 4c show the cover 112 in the fully open position. This position is comparable to the position shown in FIGS. 3a and 4a, with the exception that the bending of the cable 125 occurs in the opposite direction. Thus, it is clear that the total expected bending curvatures at the points "A" and "B" respectively, are double that shown in either FIGS. 3a and 4a, or 3c and 4c, with 180° movement of the cover. Therefore, the expected total bending curvature at the point "B" may be calculated as 2θ° and the total expected bending curvature at the point "A" may be calculated as 2(90-θ)°, where the angle θ is a function of cable stiffness as mentioned above.

This illustrates why an angle of 45° is theoretically the preferred angle in that the cable receives the same bending at both A and B. If the bushing rotation angle is only 30° the total bending at B is 60° for 180° cover rotation, and the total bending at A is 120°. This unequal distribution of bending, and hence cable fatigue, would theoretically cause a cable to fail at Point A before Point B.

The present invention may be embodied in other specific forms without departing from its spirit or essential characteristics. The bushing may also be used in other applications which are similar to that described above. These and other obvious modifications to the invention may be contemplated by those skilled in the art. Therefore, the above specification is to be considered as merely illustrative and not restrictive. The scope of the invention should instead be understood as defined by the appended claims.

What is claimed is:

1. An electronic apparatus comprising:

a first portion including at least one electronic component;
a second portion including at least one electronic component;

hinge means pivotally connecting said first and second portions;

a movable member movably positioned on at least one of said first and second portions and adapted for independent movement with respect to said first and second portions and said hinge means during pivotal movement of at least one of said portions, said movable member being a separate member from said hinge means; and

a flexible cable for electrically interconnecting said electronic component of said first portion with said electronic component of said second portion, said flexible cable passing through said movable member and engaging said movable member during said pivotal movement to effect movement of said movable member.

2. An electronic apparatus as recited in claim 1 wherein said first and second portions can be pivoted back and forth between:

(a) a fully closed position in which the angle between said first portion and said second portion is 0° and

(b) a fully opened position in which the angle between said first portion and said second portion is 180°.

3. An electronic apparatus as recited in claim 1 wherein:

(a) said hinge means includes a first hinge portion and a second hinge portion, said first hinge portion being axially spaced from said second hinge portion;

(b) said movable member is positioned between said first and second hinge portions and includes a first end portion extending into said first hinge portion and a second end portion extending into said second hinge portion for rotatably mounting said movable member in said hinge means; and

(c) said movable member and said hinge means cooperate to permit pivotal movement of said first and second portions between:

(i) a fully closed position in which the angle between said first portion and said second portion is 0° and

(ii) a fully opened position in which the angle between said first portion and said second portion is 180°.

4. An electronic apparatus as recited in claim 1 wherein:

(a) said first portion includes a back wall, a ledge portion extending from said back wall adjacent to a bottom portion of said movable member, and a pair of ears integrally formed on said back wall and extending therefrom adjacent to a top portion of said movable member and

(b) said back wall, said ledge portion, and said pair of ears retain said movable member to prevent movement of said movable member in either a vertical or a horizontal direction and to permit pivotal movement of said first and second portions between:

(i) a fully closed position in which the angle between said first portion and said second portion is 0° and

(ii) a fully opened position in which the angle between said first portion and said second portion is 180°.

5. An electronic apparatus as recited in claim 1 and further including a pair of shields passing through said movable member on opposite sides of said cable:

(a) to form a protective sheath for said cable,

(b) to prevent movement of said movable member in either a vertical or a horizontal direction, and

(c) to permit pivotal movement of said first and second portions between:

(i) a fully closed position in which the angle between said first portion and said second portion is 0° and

(ii) a fully opened position in which the angle between said first portion and said second portion is 180°.

6. An electronic apparatus as recited in claim 1 wherein:

(a) said hinge means includes a first hinge portion and a second hinge portion, said first hinge portion being axially spaced from said second hinge portion;

(b) said movable member is positioned between said first and said second hinge portions and includes a first end portion extending into said first hinge portion and a second end portion extending into said second hinge portion for rotatably mounting said movable member in said hinge means;

(c) said first portion includes a back wall, a ledge portion extending from said back wall adjacent to a bottom portion of said movable member, and a pair of ears integrally formed on said back wall and extending therefrom adjacent to a top portion of said movable member.

7. An electronic apparatus as recited in claim 1 wherein:

(a) said flexible cable undergoes bending during said pivotal movement and

(b) said flexible cable includes:

(i) a first bending point at a first location on said flexible cable and

(ii) a second bending point at a second location on said flexible cable spaced from said first location,